Red Hat OpenStack Platform

Red Hat OpenStack Platform is a proven foundation to help you create, deploy, scale, and manage a reliable public or private OpenStack cloud with security.

OpenStack technology leadership from Red Hat

As an open source community project, OpenStack develops and changes quickly.

A top contributor to the OpenStack project since 2011, Red Hat removes risk by providing long-term stability and integrations with enterprise software life-cycle management and production-level support.

Product overview

Red Hat® OpenStack® Platform brings together open, community-powered innovation with enterprise scale and confidence—empowering businesses to deliver new, differentiated applications and services on a flexible, scalable, and proven OpenStack public or private cloud.

Red Hat OpenStack Platform is powered by open, flexible, always-evolving innovation. Where established enterprises and emerging leaders alike can confidently build the cloud they need to accelerate business advantage on their terms.

Features and benefits

Red Hat OpenStack Platform gives you the features and functions to construct a scalable, flexible cloud environment based on proven, integrated technologies from the core to the edge.

Cloud infrastructure with Red Hat OpenStack Platform provides a proven foundation for today's critical workloads and a future path to hybrid cloud, the edge, and beyond.

Table 1. Ongoing operational management

Feature	Benefit
Single life-cycle tool for deployment and management	One tool is used for planning, deploying, and managing an OpenStack environment. Red Hat OpenStack Platform director is embedded in Red Hat OpenStack Platform and is updated to add new capabilities to further simplify Day 0 to Day 2 platform operations.
Workload and infrastructure management	Red Hat CloudForms® can manage OpenStack workloads and infrastructure. It gives you resource management and data collection over OpenStack clouds, including resource monitoring and reporting, compliance assurance, chargeback and showback, service cataloging, user management, and heat template management.
Distributed compute nodes	Build an edge computing architecture with distributed compute nodes, placing compute and storage closer to data sources while providing consistent, centralized management from the core to the edge.
Integration with Red Hat Satellite	Users can access Red Hat Satellite for application and operating system (OS) entitlement, including images and host package management displayed by Red Hat OpenStack Platform director.

Build your cloud with a modern I.T. infrastructure

Organizations seeking the benefits of their cloud environment can tap directly into Red Hat Ceph Storage, tightly integrated scale-out storage for OpenStack. Learn more at redhat.com/en/resources/hyperconverged-infrastructure-for-cloud.

Red Hat training and certification

Get your IT team trained on OpenStack and certified with Red Hat's lab-intensive courses and performance-based exams. Learn more at redhat.com/en/services/training/openstack.

Professional consulting services

Red Hat offers a portfolio of consulting offerings for cloud technology solutions, including:

- Consulting discovery sessions
- Consulting assessments.

Learn more at redhat.com/consulting.

For more information on OpenStack, visit openstack.org.

For more information on Red Hat cloud solutions, visit redhat.com/products/cloud-computing.

Feature	Benefit
Containerized OpenStack services	Running OpenStack services in containers lets you manage and scale each service independently. This simplifies deployment, upgrades, rollback, and management to deliver increased control and flexibility.
Deployments using Red Hat Ansible® Automation Platform integration with Red Hat OpenStack Platform director	IT operations teams can preview the OpenStack deployment before it goes live, allowing anticipation of potential deployment or upgrade issues. Added visibility during the deployment process enables faster failure identification and debugging, including the ability to repeat and reapply isolated deployment steps if a failure occurs.

Table 2. Platform life-cycle management

Feature	Benefit
Reliable deployments with live upgrades	Red Hat OpenStack Platform director checks systems throughout the installation process to provide consistent, automated cloud deployment. It features live orchestrated system upgrades and updates, ensuring long-term, production-ready stability with little downtime.
Fewer platform upgrades through long-life releases	Red Hat provides Red Hat OpenStack Platform support for up to five years while bringing in the latest features from the bi-annual upstream OpenStack community release cycle, reducing the need for major platform upgrades yet still benefiting from the latest capabilities.
Innovation consolidation	Red Hat OpenStack Platform brings together the best features from the previous versions, including community releases into a single, stable, feature-rich version.
New innovation throughout the life cycle	Additional features and capabilities can be added throughout the software release life cycle—without the need for full platform upgrades. This means that as new community innovations are released, they can be incorporated into the platform without waiting for a new version of software from Red Hat—giving customers the new features they want without compromising the stability they need.

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Table 3. Reliability, availability, and performance

Feature	Benefit
Production testing and hardening	An extensive patching, bug-fixing, testing, and certification process ensures broad compatibility and performance with upstream community releases.
Highly available infrastructure	Red Hat OpenStack Platform maintains high availability and policy-driven measures, including infrastructure failure recognition, automated host node evacuation, and downed node fencing. It also automatically restarts workloads on remaining available hosts.
Performance	Red Hat Virtualization Hypervisor provides superior performance for OpenStack workloads. Based on Kernel-based Virtual Machine (KVM), the hypervisor holds top performance scores on the SPECvirt_sc2013benchmark.[1] In Red Hat OpenStack Platform, the real-time KVM compute role delivers ultra-low latency using the Red Hat Enterprise Linux® real-time kernel.
GPU/vGPU Support	Drive new innovation and next generation customer experiences driven by hardware accelerated applications for emerging workloads like AI/ML.

Table 4. Security and compliance

Feature	Benefit
Red Hat Enterprise Linux OS	Security-Enhanced Linux (SELinux) military-grade security technologies prevent intrusions and protect data when running in public or private OpenStack clouds.[2]
Stack access and monitoring	Continuous monitoring and flagging of noncompliant virtual machines ensure resources comply with enterprise policies. Granular role-based access control (RBAC) and tenant synchronization let you manage user permissions.

1 *"All SPECvirt_sc2013 results published by SPEC." Standard Performance Evaluation Corporation, 2018. https://www.spec.org/virt_sc2013/results/specvirt_sc2013_perf.html.*

2 *"Government standards." Red Hat, 2018. https://access.redhat.com/articles/2918071.*

Feature	Benefit
Encryption and key management including Hardware Security Module (HSM) back end support	Encryption of control flows and optional encryption of datastores and flows enhance privacy and data integrity. Centralized certificate and key management ensure applicability of the best security management practices to help maintain security and meet strict compliance standards with the support of dedicated key management hardware.
Crypto offload for IPSec VPN to NICs	Support a more diverse environment allowing for high bandwidth remote IPsec VPN connections at the VM/ tenant level as well as improved compliance with security standards such as GDPR and Data Security Standard (PCI-DSS).
Compliance acceleration	Security features targeted toward the Federal Risk and Authorization Management Program (FedRAMP), European Telecommunications Standards Institute (ETSI), and Agence nationale de la sécurité des systèmes d'information (ANSSI) regulations help you keep your environment compliant.

Table 5. Integrations

Feature	Benefit
Containerized, cloud-native workload support	Integration between Red Hat OpenStack Platform and Red Hat OpenShift® lets you create a flexible architecture for containerized and cloud-native applications managed by Red Hat OpenStack Platform director. This includes the ability to automate the provisioning of bare-metal Red Hat Enterprise Linux resources for Red Hat OpenShift Container Platform, the deployment of production-ready OpenShift Container Platform clusters for high availability, and the director-based scale-out and scale-in of OpenShift Container Platform nodes.

Feature	Benefit
Reliable storage	Integration with Red Hat Ceph® Storage provides a highly scalable and redundant object, block, and file storage solution for your OpenStack cloud. This includes the ability to attach a volume to multiple hosts and servers simultaneously for clustered enterprise workloads, director-led creation and management of multi-tier storage architecture, optimized volume migration, and Internet Protocol Security (IPSec) tunneling of internal traffic using Ceph. Red Hat Storage also delivers the ability to monitor Quality of Service by workloads, which helps mitigate noisy neighbor issues.
Networking integration	Red Hat OpenStack Platform includes several features to increase networking performance and flexibility, including, Load Balancing-as-a-Service (LBaaS), and Open Virtual Network (OVN).
Expansive ecosystem	Red Hat simplifies integration with existing datacenter investments through an OpenStack partner certification program across software, hardware, and services vendors, including original equipment manufacturers (OEMs), independent hardware vendors (IHVs), independent software vendors (ISVs), channel partners, system integrators, and cloud service providers (CSPs) and managed service providers (MSPs).

Technical specifications

Red Hat OpenStack Platform will run on any server platform that is certified for Red Hat Enterprise Linux. The following minimums are required for specific server roles:

Compute nodes

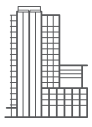
- 64-bit x86 processor with support for the Intel 64 or AMD64 CPU extensions, and the AMD-V or Intel Virtualization (Intel VT) hardware virtualization extensions enabled (recommended minimum of 4 cores)
- Supports ppc64le on Power 8 or Power 9 systems running the OPAL firmware
- A minimum of 6GB of RAM (additional RAM may be required based on the amount of memory the user intends to make available to virtual machine instances)
- A minimum of 40GB of available disk space (1TB is recommended)
- 2 x 1Gbps network interface cards (at least 2 network interface cards are recommended for production environments)
- Each compute node requires intelligent platform management interface (IPMI) on server's motherboard

Controller nodes

- 64-bit x86 processor with support for the Intel 64 or AMD64 CPU extensions
- Supports ppc64le on POWER8 or POWER9 systems running the OPAL firmware
- A minimum of 32GB of RAM (64GB is recommended for optimal performance)
- A minimum of 40GB of available disk space
- 2 x 1Gbps network interface cards

Red Hat OpenStack Platform director

- 8-core 64-bit x86 processor with support for the Intel 64 or AMD64 CPU extensions
- Red Hat Enterprise Linux as the host operating system
- A minimum of 16GB of RAM
- A minimum of 100GB of available disk space (10GB of free space is needed before attempting an overcloud deployment or update)
- A minimum of 2 x 1Gbps network interface cards (10Gbps is recommended for provisioning network traffic, especially if provisioning a large number of nodes in overcloud)



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About Red Hat

Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open source communities, Red Hat can help organizations prepare for the digital future.

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